C2150-4

CHILTON'S MARCH 1986

CCJ

COMMERCIAL CARRIER JOURNAL

75th Anniversary

MILESTONES IN TRUCKING

MARCH 1911-MARCH 1986

000990121B9 CJ990121B-8
STATISTICAL REFERENCE IDX
CONGRESSIONAL INFO SERV
4520 EAST WEST HIGHWAY
BETHESDA MD 20814
DIR
295
***
***

COMMERCIAL CARRIER JOURNAL

Published As Commercial Car Journal Continuously Since 1911
RICHARD B. LAIMBEER, Publisher
GERALD F. STANDLEY, Editor-In-Chief

VOLUME 143 NUMBER 3 MARCH 1986

FLEET REFERENCE ISSUE

Following an introductory article on the status of efforts by trucking associations and other organizations to establish uniformity in states' tax and registration laws, in the Fleet Reference Annual edition in April, CCJ will offer updated information on reciprocity, sizes and weights, fuel taxes, a guide to federal regulatory agencies and a directory of fleet associations. Also featured in the April edition will be the Shop Equipment Buyer's Guide.

Chilton

BUSINESS MAGAZINES/MARKETING SERVICE/BOOKS

COMMERCIAL CARRIER JOURNAL (ISSN 0734-1423), one of the publications owned by CHILTON COMPANY, is published monthly at Chilton Way, Radnor, Pa. 19089. Chilton Co. is a division of American Broadcasting Companies, Inc., New York, N.Y. Subscription price: United States and its possessions $39.95 a year; single copies are $5.00 a copy with the exception of special issues (April, July, October) which are $10.00 each. Canada and all other countries are $75.00 a year, payable in advance. Second Class Postage Paid at Wayne, PA 19089 and additional mailing offices.

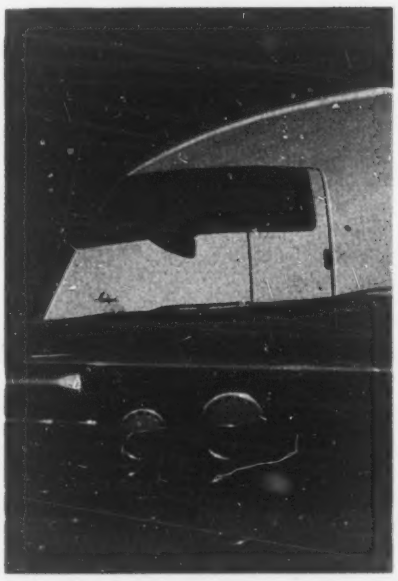
Postmaster: Send form 3579 to Commercial Carrier Journal, Box 2045, Radnor, Pa. 19089.

Permission to photocopy for internal use or the internal use of specific clients is granted by Chilton Company for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $1.00 per copy of the article, plus 25¢ per page is paid directly to the CCC, 21 Congress Street, Salem, MA 01970. Special requests should be addressed to the managing editor. (0734-1423/86 $1.00 + 25¢)

©CHILTON COMPANY 1986

ONE OF THE ABC PUBLISHING COMPANIES

Page 103



Page 155

75th ANNIVERSARY ISSUE

The special anniversary section of this edition is comprised of four major parts:

Milestones in Trucking: Covers the first trucks; development of truck technology and highways; the need to regulate and deregulate; early fleets; industry associations and suppliers. 103

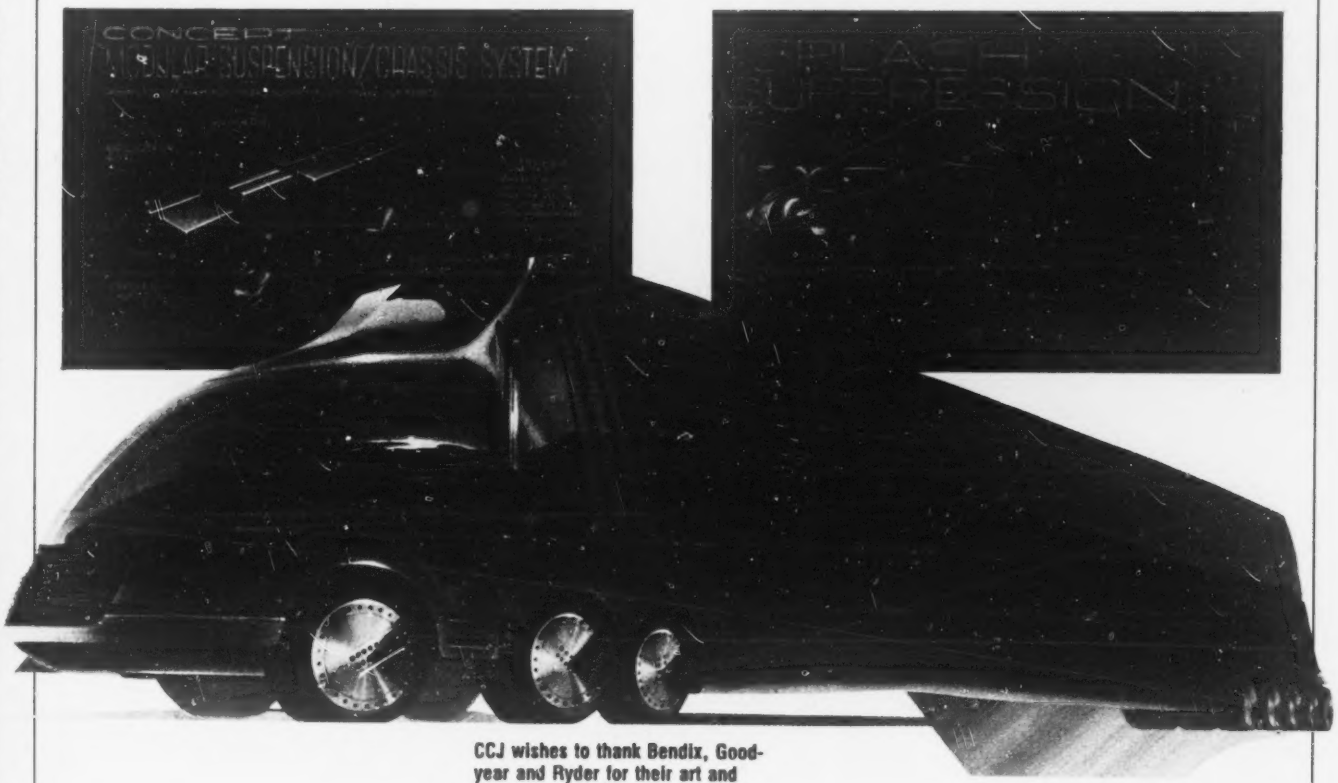
The Coming Of The Brotherhood: A review of the Teamsters' development into an institutional part of trucking, organized crime's influence on the union, and the recent decline of the brotherhood. .. 129

The Supplier Scrapbook: A celebration of industry suppliers and a sampling of their early advertisements..... 137

Into The 21st Century: The rose of trucking is just beginning to bloom and will continue to flower if investments in people and technology are made. 155

Into The 21st Century

Don't become so infatuated with identifying and controlling costs, that you forget to invest in the future. That's a concern expressed by many of those interviewed by CCJ editors for this special section. It is a thought fleet operators should keep in mind during these times, when pressures of day-to-day business competition can easily overwhelm the need to anticipate and develop strategies for success in what most believe will be a much tougher trucking business tomorrow. In this section, our editors have attempted to construct a realistic image of what the trucking business will be like in the foreseeable future. The information reported is a compilation of interviews with industry analysts and many of the best minds in the fleet and supplier sides of the trucking industry today.



CCJ wishes to thank Bendix, Goodyear and Ryder for their art and photo contributions to this section.

Getting Better Control Of The Vehicle And Costs

"There is an applied technology wave sweeping over this industry," says Bill Tracy, technical director of The Maintenance Council of the American Trucking Associations, Inc. He should know, for he is one of the driving forces behind a joint industry effort to ensure that tomorrow's trucks will offer the advantages users need.

Rather than present a broad-ranging report on the many areas where technology is being developed to make trucks more efficient and productive, our editors chose to focus on two areas where fleet operators will experience the greatest impact the soonest, and where many believe the greatest benefit, from safety and efficiency standpoints, is likely to be the result: brake systems and electronics.

Air Brakes: The Pressure Is On

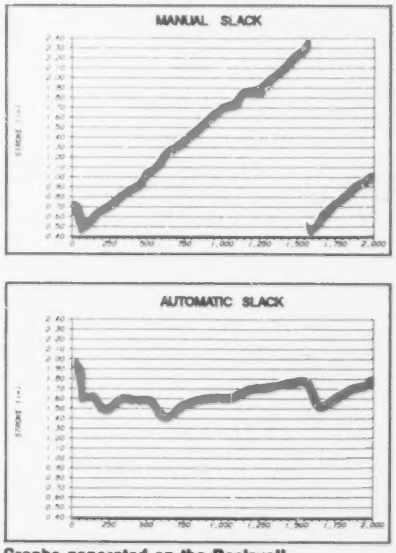
The pressure is on to improve braking on tomorrow's trucks. That's because modern brakes are being called on to provide more retardation force than in years past, sometimes twice as much.

Ironically, the advances making modern trucks more efficient to operate, and tomorrow's trucks better still, are taxing brake systems to their design and maintenance limits.

Vehicle rolling resistance, engine braking and aerodynamics all play a part in creating drag that aids in the vehicle braking effort. Widespread increase in the use of radial tires, improved aerodynamics, better lubricants, plus decreased engine braking, mean that brake systems must absorb a greater amount of energy than ever before.

Need for better braking has attracted a lot of attention over the past few years, and rightly so. In 1984, brake system defects and misadjustments accounted for 63.2% of all out-of-service violations found during Bureau of Motor Carrier Safety roadside inspections.

A staggering amount of research and development work, covering all aspects of vehicle braking, is being conducted at the National Highway & Traffic Safety Administration; the federal Department of Transportation; the Bureau of Motor Carrier Safety; the Society of Automotive Engineers; the Truck/Trailer Brake Research Group, a joint-effort between the American Trucking Associations, the Canadian Trucking Association, the Motor Vehicle Manufacturers Association, the Truck Trailer Manufacturers Association and the Heavy Duty Manufacturers Association of the Motor and Equipment Manufacturers Association. This does not include product development and testing being done by virtually all OEMs and brake component suppliers.



Graphs generated on the Rockwell dynamometer show that, with a manual slack adjuster, chamber stroke varies from about $^1/_2$ in. to $2^1/_2$ in. between adjustments. With an automatic slack adjuster, stroke varies only from about $1^1/_2$ in. to 2 in., with no adjustment. The duty cycle (brake line pressure) was varied throughout the 2000 applications, according to vehicle service data gathered from the field.

While at this time it remains unclear exactly how typical brake systems will be made better, there is evidence that one or more of the following will play a major role in tomorrow's braking systems: automatic slack adjusters; long-stroke chambers; disc brakes; larger front brakes; and electronically controlled anti-lock systems.

Automatic slacks: Automatic slack adjusters will gain broader acceptance among fleet operators, many of whom were burned by bad products when they were introduced in the 1970s. Today, there remains a general concern—about reliability, durability, installation complications, an inherent tendency to overadjust on drum brakes and misinformation about each of these—which has slowed acceptance of ASAs and caused them to be blamed for many ills more honestly attributed to poor, or neglected, brake system maintenance.

Air disc brakes: Disc brakes have inherent advantages over drum brakes. The chief advantage is disc brakes provide more consistent braking torque through a wide range of temperatures and speeds. Another advantage is discs' ability to shed water.

While many believe that discs will become the brake of the future, there are problems that first

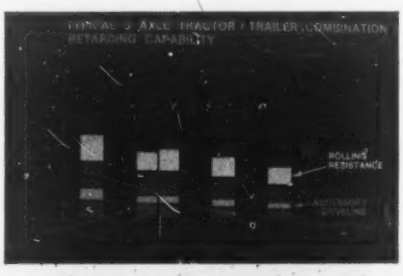
must be overcome. Discs have smaller friction surfaces and less lining area, per installation, than typical drum brakes. This means they must generate higher clamping force and dissipate more energy per square inch of lining. Thus, disc brake linings wear out faster in the same application alongside drum brakes, and heat-related failures like rotor cracking are problematic.

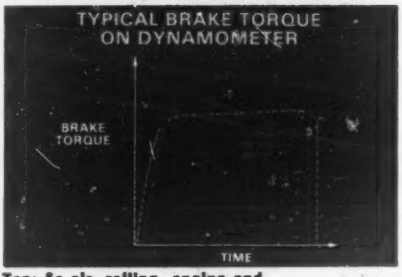
These problems can be solved by technology, although the question remains whether this technology can be made available at reasonable cost. The problem that most frustrates suppliers and would-be disc brake users is brake imbalance. Brake imbalance is not only a disc brake problem. It exists on drum braked equipment as well. Efforts to integrate disc brake-equipped vehicles into drum-equipped fleets can add unwanted complexity and aggravation to the balance equation. This is a major roadblock to the increasing use of disc brakes in the future, and finding a solution to the imbalance problem is given high priority on fleet equipment managers' and suppliers' agenda. Eventually, this will lead to a better understanding of brake system imbalance, which should ease the road a bit for disc brakes.

Front brakes: If optimum brake balance is to be achieved, the brakes on each axle must contribute braking force in an amount appropriate for the weight carried by that axle. Many believe that large front brakes will be necessary on future brake systems.

User resistance to front brakes, however, is strong. The major concern is loss of steering resulting from front wheel lockup in a slippery road emergency stop situation. Steering pull resulting from a side to side front-wheel brake imbalance, is a less volatile concern. Although these fears can be minimized or eliminated by, for instance, the use of disc brakes.

Long-stroke chambers: Another device that promises to improve brake systems of the future is referred to as the "long-stroke brake chamber." The effective, useful push-rod stroke of a standard type 30 chamber is approximately 2 in., after which the braking force produced at the chamber drops off sharply. A high-pressure brake application can use approximately $1^1/_2$ in., assuming the brake is properly adjusted. If this emergency application is prolonged until the brake assembly heats up and expands the drum, another $^1/_2$ in. of stroke may be required to maintain shoe-to-drum contact. A prolonged, high-pressure brake application like this, especially in a brake system with unadjusted brakes, may extend the chamber's stroke beyond 2 in., and into the range where chamber output force can't contribute much to the braking effort.





Top: As air, rolling, engine and driveline resistances diminish, brake systems are called on to do more work.
Above: Unlike a drum brake, a disc provides constant braking torque throughout an extended stop.

A brake chamber designed with an additional $^1/_2$ in. of effective push-rod stroke, while not a substitute for properly adjusted brakes, would provide an added margin of safety.

Anti-lock: As is the case with long-stroke chambers and front brakes, many industry sources believe that electronic anti-lock braking systems will reappear. While none would dare to speculate on whether the government will make anti-lock systems mandatory, they do say that, as other vehicle electronic systems begin to gain acceptance, anti-lock might become palatable on its own merits because today's systems are reportedly much improved over the failure-prone systems of the FMVSS-121 era.

Heavy-duty brakes are finally getting the attention they deserve. Manufacturers, at the behest of users, government and industry associations, are working to shorten stopping distances, while improving reliability, longevity and maintainability in tomorrow's systems. One thing about which everybody agrees is that future brake systems will be better balanced. For the user, that means safer and more reliable stopping.

Electronics: Computing Lower Costs

Advances in electronics promise that fleet operators soon will be able to dispatch driver and vehicle with greater control, and that means lower cost.

Computer-equipped trucks that

interact with drivers and contain a mind-boggling array of hi-tech electronics will evolve within 15 years, according to Warren Young, engineering vice president at Freightliner.

These trucks will bristle with sensors, monitoring everything from road conditions to brake linings, according to Mack Truck engineers. About 50 sensors, linked with a wide assortment of microprocessors and mechanical actuators, are expected to control:

- transmission shifts;
- all aspects of engine operation;
- anti-skid braking;
- variable-rate power steering;
- drive-axle traction;
- suspension stiffness.

Even the driver's seat, heating/air conditioning and dash instruments probably will be computerized, engineers say.

One significant innovation likely to appear on highway trucks is electronic traction control, says William Eddy, director of the Product Development Group at Allied's Automotive Technical Center in Troy, Mich.

By automatically braking individual sets of drive wheels to eliminate slippage, traction control permits single-axle tractors to handle fairly heavy loads "without sacrificing the pulling power associated with tandem-axle trucks," Eddy says. Traction control will permit substantial weight savings, resulting from use of lighter drive lines and suspensions.

To further reduce the vehicle weight, many suspensions and drive shafts will be made of space-age composite materials instead of metal, according to Robert Zalokar, Mack Truck's vice president of engineering.

It's expected that on-board computers, already capable of providing management with a variety of information, will be used routinely by drivers to keep logs and other records before the Year 2000. The feasibility of the electronic driver log already is being tested in Frito-Lay's private fleet (CCJ, Jan. 1986, page 121).

In addition, several marketers of on-board computers may expand their systems to encompass satellite navigation, some form of two-way communication, and/or vehicle-locating capabilities. Benefits, for example, include the ability to instantly re-route trucks for pick-up of additional freight.

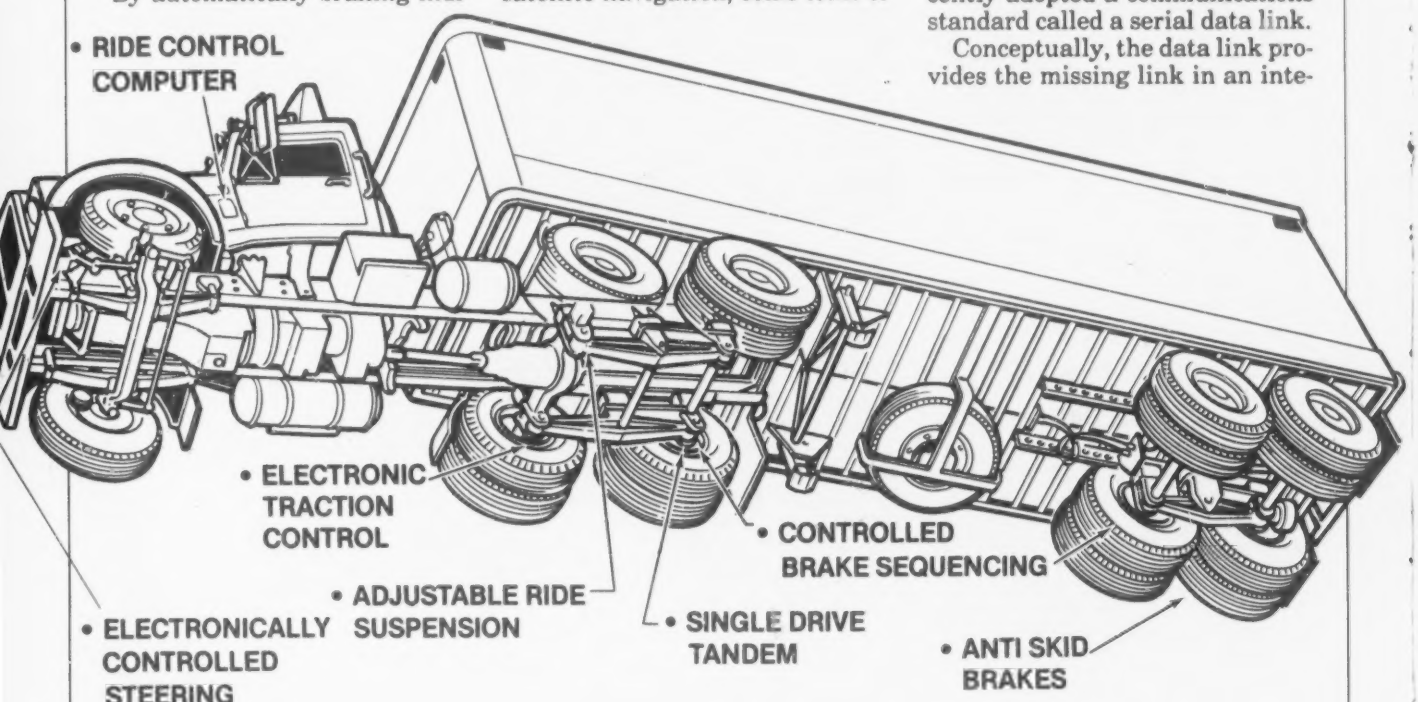
Assuming sufficient industry demand, on-board satellite navigation is likely to materialize by the mid-1990s, according to Dean Stanley, engineering vice president of Navistar International (formerly International Harvester).

Much of the future truck's basic technology is already in place, or being fine-tuned. The industry's greatest challenge, therefore, is to minimize the cost of sensors/actuators and maximize system reliability.

The immediate challenge is to ensure that all microprocessor-controlled instruments, components and on-board computers can communicate. They must speak the same electronic language.

Working toward that goal, joint committees of the American Trucking Associations and the Society of Automotive Engineers recently adopted a communications standard called a serial data link.

Conceptually, the data link provides the missing link in an inte-


• RIDE CONTROL COMPUTER
• ELECTRONIC TRACTION CONTROL
• ADJUSTABLE RIDE SUSPENSION
• ELECTRONICALLY CONTROLLED STEERING
• CONTROLLED BRAKE SEQUENCING
• SINGLE DRIVE TANDEM
• ANTI SKID BRAKES

grated but modular approach to outfitting a truck with electronics. That is, anything plugged into the system is automatically compatible with its microprocessing bedfellows.

Trucks of the future will have more electronic controls but less wiring, according to Alan Lesesky, Freightliner's project engineer for electronics and pneumatics.

He says that in less than 10 years the spaghetti-like wiring harnesses of today's trucks will be replaced by simplified, multiplex wiring systems, using fiber optics to communicate with microprocessor-controlled instruments and components via coded signals of light. A single fiber optic strand can replace several dozen conventional wire pairs of a typical truck wiring harness.

Lesesky also anticipates widespread use of wireless tire-pressure-monitoring systems linked to instrument panel displays. Monitors will be required, he says, because future trucks will ride on lightweight, low profile, super single tires.

If the electronic truck of the not-too-distance future is an electrical engineer's dream, it has all the properties of a potential nightmare for fleet maintenance executives who fear that too much electronic gimmickry will lead to increased vehicle downtime and maintenance costs.

Despite these misgivings, engine makers will probably incorporate electronic controls as standard equipment to comply with the Environmental Protection Agency's 1987-1990 diesel exhaust emission standards and to counteract resultant declines in fuel economy.

An electronically-controlled engine will operate at low rpm/high temperature. Looking ahead, a few engine makers contend that an alternative fuel such as methanol may be required to meet the EPA's 1990 standards.

By the year 2000, truck manufacturers are expected to offer a diversity of electronic gadgets, with emphasis on providing information rather than further automating truck functions.

Included will be crash-data-recording modules, engine/component-status monitors, fuel mileage display devices, sleepy-driver alert systems and road condition monitors.

Navistar, for example, expects to unveil a voice synthesis system and radar-based, obstacle-warning systems within a year or two.

Voice synthesis is not gadgetry, according to Trevor Jones, vice president and general manager, TRW Transportation Electronics Group. He emphasizes that voice synthesis will permit smaller instrument clusters and "the ability to instantly alert a driver to a particularly hazardous event."

It's notable that Citizens Insurance Co., a subsidiary of the Hanover Group, is reportedly offering a 20% discount to fleets equipped with radar warning devices. Obstacle-warning devices made by Vehicle Radar Safety Systems of Mount Clemens, Mich., have been used by Preston Trucking Co. of Preston, Md., for three years. So, on-board radar is more than a Buck Rogers pipe dream.

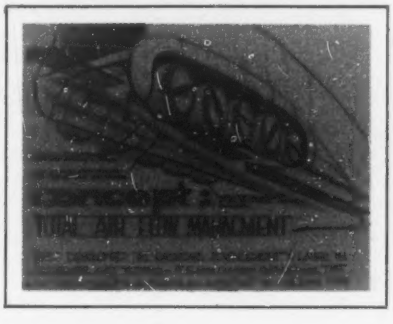
Jones says that within eight years most vehicle makers will eliminate conventional dash instruments in favor of 100% solid state instrumentation.

For example, consider the microprocessor-controlled, reprogrammable, electronic speedometer/odometer on the International 9370 tractor. This can be used with 881 combinations of tire sizes and axle ratios. It is reportedly accurate to ±1%. This indicates what the truck of the future will offer: better performance and more-accurate user information.

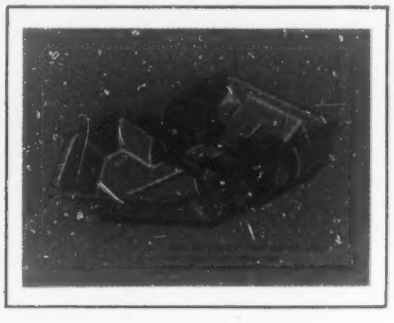
Here's a summary of some products under development by several truck and component makers:

• Caterpillar has developed a Programmable Electronic Engine Control (PEEC) specifically for its 3406B diesel, says director of engineering Charles Fangman.

The PEEC, provides cruise control and road speed limiting. It



Above: O'Keefe's brewery in Toronto could haul 6000 one-quart bottles in this futuristic unit, which used a Mack Model EC tractor. The photo appeared in the January 1938 issue of CCJ.



will be available on the 3406 CARB (California) engine for the 1987 model year, and on 3406Bs in 1988.

• Cummins will introduce its first generation of electronic engine controls toward the end of this year, according to Paul Rabe, director of engineering. "It will be a cruise control/road speed governor built into our PT fuel pump."

Cummins' Compuchek diagnostic consoles, capable of differentiating between 50 types of engine problems, will be applicable to all Cummins engines of six or fewer cylinders by the end of 1986.

• Dana is experimenting with automated manual transmissions for Class 8 trucks, says engineering vice president Charles Jones.

• Detroit Diesel Allison will expand applications for its Automatic Transmission Electronic Control (ATEC) and Detroit Diesel Electronic Control (DDEC). The DDEC availability currently is limited to selected DDA Silver 92 engines.

• The Fuller Transmission Division of Eaton Corp. is field testing a microprocessor-controlled, automated version of the RTO-11609B Fuller Roadranger transmission for Class 7-8 trucks, says engineering electronics supervisor Donald Speranza.

The unit requires only .7 seconds to change gears, he says, and can be programmed for maximum fuel economy or maximum performance. In the economy mode, it shifts 10 times more frequently than when in the performance mode. Introduction is scheduled for 1987 or 1988. Several variations on the basic theme of transmission automation are being tested by Eaton. One is the Shift-Mate, which indicates ideal shift points but exerts no direct control.

• Freightliner's Young says trucks will feature innovations such as electronic accelerators to replace mechanical linkages and bulb-warmers that triple the life of light bulbs.

Freightliner will introduce an electronic shift-prompt indicator that tells drivers what gear to use for maximum economy. "The logic for the shift indicator eventually will be integrated into automatic transmissions," Young says.

• Mack is working on electronic shift controls as well as full authority electronic fuel controls and a major vehicle electronics package being developed in cooperation with TRW. Mack also will offer an electronic version of its Maximizer road speed governor

during the first quarter of 1986. Reportedly, the electronic version is accurate to within ±1%.

• Even the "license plate" of future trucks may contain hi-tech electronics, according to Western Highway Institute. The Heavy Vehicle Electronic License Plate (HELP) is an on-board transponder accessed by a radio signal from a roadside data-collection device. HELP identifies the individual truck being monitored; its speed, weight class, total weight, length, and axle spacing; time of day; and vehicle location. Funded by state and federal transportation agencies, a three-year, $6 million feasibility study of HELP is underway (CCJ, Jan. 86, page 22).

Promises of new levels of economy and control notwithstanding, fear of the unknown and unproven, will cause many fleet operators to resist these new hi-tech trucking devises. Charles Tyrrell, vice president of special services for Gelco Truck Leasing does not intend to be one of them. "To remain competitive, fleets must exploit innovations, not fight them," he says.

"Drivers will benefit from instrument readouts of axle loads, component condition, fuel economy, routing instructions and much more. Management, in turn, will gain insight about driver and component performance, vehicle diagnostics, fuel tax data, driver's hours of service and you-name-it," Tyrrell says.

Tomorrow's Trucks

"The challenge for suppliers and fleet operators will be to make sure that these 'gee-whiz' devices will help you make more money," says Slim Robertson, maintenance vice president, ABF Freight System, Fort Smith, Ark. "If not, they will ride a hard road in the future of this industry."

"It costs about $100 million to develop new generation trucks today," says Thage Berggren, president, Volvo White Truck Corp. "That's 100 times more than in 1960."

Bill Tracy, of ATA, says basic truck technology has changed very little since the 1930s, except for the addition of air brakes and diesel engines. This fact, coupled with today's urgent call for "more productive, low life-cycle-cost vehicles," Tracy says, "is causing an applied technology wave to sweep over the industry."

Each person was speaking in support of the Tomorrow's Trucks program, a joint effort of The Maintenance Council of ATA and the Society of Automotive Engineers.

The SAE Paper 852330, *Tomorrow's Trucks: The Users' Perspective*, has nine authors. Each is a fleet manager and/or a TMC official. Written from the viewpoint that vehicle users have the most critical knowledge about truck performance in daily use, the authors make what they call "meaningful recommendations" which they believe must be incorporated into the design of future vehicles.

The Tomorrow's Trucks committee places special emphasis on the need for: equipment operating productivity and versatility; simplicity of parts and maintenance skills required to maintain equipment; self-diagnosis capability; and, of course, lowest cost of ownership.

"These things must be at the heart of tomorrow's trucks," the authors state. Specific recommendations are made regarding the need for improved electrical and instrument systems, tires and wheels, cab and controls, driver and vehicle interface, aerodynamics, vehicle crashworthiness and mechanical integrity of components.

This joint effort is intended to generate a functional dialogue between the design engineer and end user that will result in practical vehicle and equipment advances that fleet operators need. Combined with the frenzy of effort on all other fronts to advance the level of technology in tomorrow's trucks, the industry someday rightfully may be able to use the phrase "hi-tech trucking," without causing a giggle to rise from the mouths of the doubtful.

That Ole Truck Market Ain't What It Used To Be!

Vehicle and tonnage markets are changing dramatically and will continue to evolve in the coming years. There are both varying opinions and much consensus on how the industry's two major markets will be reshaped in the years ahead. Here, CCJ presents a number of insights, some provocative, from individuals within both markets and from industry analysts outside of trucking.

The Fleet Side

Despite the chorus of moans and groans that have echoed through the trucking industry since the passing of the 1980 Motor Carrier Act, many prominent trucking industry leaders and veterans are enthusiastic about the industry's future. If there is a common perception regarding the future, it is the optimism they share about the coming years.

Kenneth Younger, the president of Carolina Freight Carriers, Cherryville, N.C., observes, however: "If you are one of those who have been forced out [of business] since 1980, you can't possibly feel good about anything. But for those of us who survived and are flourishing, there is nothing but challenge and opportunity."

What follows is a series of projections about the future, based on extensive interviews with industry leaders including Younger; Anthony Burns, president and CEO of Ryder Systems, of Miami; Richard Few, president of Cooper Motor Lines, Greenville, S.C.; and others.

Here are developments they say fleet operators can expect:

• A significantly restructured industry with a dozen or less major transcontinental carriers of less-than-truckload freight.

• Elimination of rate immunity with tariffs based on individual contracts negotiated between shipper and carrier.

• De-emphasis of the so-called trucking company, and the appearance of total transportation companies specializing in distribution and warehousing, coupled with freight hauling, using all transportation modes.

• Acceleration in computer use, especially on-board computers that monitor driver and vehicle, and computer systems linking vehicles, shippers and carriers.

• A gradual reduction in the need for Class 8 highway tractors as the U.S., once a nation of smokestack industries, becomes more of a service-oriented economy.

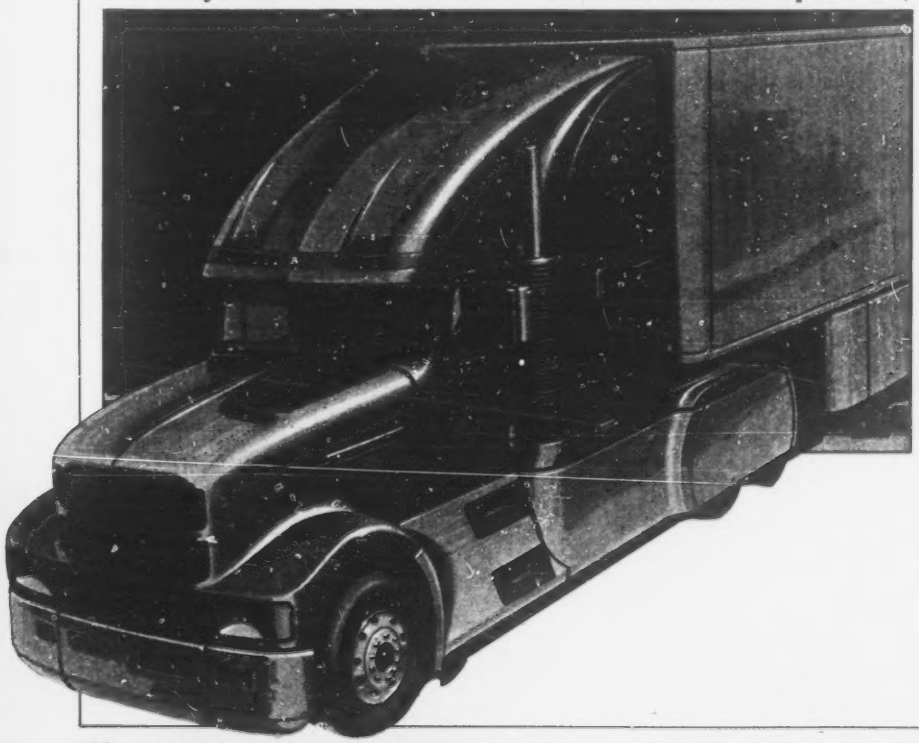
• Development of a single, standard truck driver's license and a single, nationwide vehicle licensing system for interstate commercial vehicles.

• Reduction of private carriage as companies turn their truck operations over to others, like Ryder Systems, in the name of greater cost-efficiency and increased productivity.

"The industry will see more progress in the next five years than it has in the last 10," says Donald Estes, president of Ryder's Vehicle Leasing and Service Division. Estes says, for instance, computers that enhance vehicle dispatching, driver log recording and freight movements and eliminate paper bills-of-lading are coming on strong.

While welcomed by the industry in the name of efficiency, computerization brings with it significant problems. Those interviewed for this section see computer technology outpacing user education. As Richard Few of Cooper Motor Lines observed: "Tomorrow's mechanics are going to have to get a lot smarter." The question is: Who is going to provide the financing and expertise to train mechanics to fix a computerized road tractor?

Few, a past chairman of the American Trucking Associations, says short-term problems include increasing insurance rates, improving driver safety, plus ship-



per concern over the "financial stability of carriers" serving the truckload (TL) market.

The president of Ryder's Distribution Systems Division, Thomas Mainwaring, agrees. He says the insurance industry will solve its problems in three to four years.

Few says: "Each segment of the industry—LTL, TL, contract and private carriage—will surrender their individual differences as the interests of each segment diminish because of deregulation." This means, in the next 10 to 15 years there will be less distinction between motor carriers.

Efforts to anticipate the future must be tempered with the interests of individual companies and the role they play in the marketplace. But there are commonalities that affect every company. One is labor; the other is equipment.

It is generally believed the International Brotherhood of Teamsters will remain a potent force. But the way the union operates and the way it negotiates contracts will change. Industry veterans agree that the concept of the National Master Freight Agreement is dead. They also agree that there will be group negotiations involving motor carriers with common interests—carriers like Consolidated Freightways, Roadway and Yellow Freight. Otherwise, labor negotiations will be tailored to individual fleets, regions or distribution patterns.

Carolina's Younger says survival of the Teamsters will be based on the number of mergers we see. He characterized the union today as skittish and lacking organizational ability.

Few, Mainwaring, Younger and Estes see an increasing trend toward the vanilla truck. While each views this trend from a different perspective, and understands that competitive economics are forcing truck assemblers in that direction, they are not sure they will be happy with the outcome.

Ryder people favor the trend, having developed vehicle specs with standard components long ago. They see it as a means of controlling future costs and being more efficient. Efficiency, they report, that comes with: knowing each component's life cycle and performance; reduced spare parts inventory in a nationwide system that operates more than 80,000 vehicles; mechanics familiar with the vehicles and equipment they must work on.

Younger, with his fleet of 7000 trucks, tractors and trailers, sees it another way: "The European truck manufacturers have to understand that I don't want some engineer in Sweden or Tokyo dictating what I'm going to run." Younger acknowledges, however, that tomorrow's purchases will be based on price. "If six manufacturers bid on the kind of tractor we want for Carolina, we are going to buy at the lowest price. I don't care who the assembler is." Younger adds, however, that "Carolina won't buy a truck that isn't manufactured in the U.S."

Few says: "I personally am in favor of spec'ing a truck to do a specific job." But he is quick to add that he likes the idea of limiting components if it holds the line on prices.

Mainwaring says: "With so much out-sourcing by manufacturers and suppliers, I question what is a U.S. truck today." He favors the plain vanilla concept, saying it should make everyone more efficient and cost-effective. However, he maintains that "companies will still have a choice of equipment in the future."

No matter what the outcome of the spec'ing debate, those interviewed agree that some assemblers will withdraw from the market due to over-capacity.

Younger says there will be greater use of intermodalism because it is more efficient. "There will be fewer trucks running coast-to-coast. We just won't need the big, Class 8 over-the-road sleeper in the same numbers as today."

According to Younger: "The owner operator, as we know him today, will be non-existent. We'll still have the independent, but he will operate under company control. The company will dictate his equipment based on that carrier's costs."

Few, who uses owner operators exclusively, agrees: "In the future, the non-union, truckload carrier that operates with company-owned equipment will be the most efficient. They will be the companies dominant in TL. They will be the carriers that will be around 25 years from now."

Few does not predict the demise of the owner operator, only in the way he operates. He says the owner operator's future also depends on tonnage. "If the nation's industrial capacity to produce explodes and there is a sharp increase in freight tonnage, owner operators will get the overflow. But that's the only way he will be able to survive in the future."

Mainwaring says the truckload segment is moving toward company-owned equipment rather than depending on owner operators, be-

cause it is the only way to control costs. "If you can't control your costs, you won't be able to remain in business," he said. He notes the excess capacity in equipment is concentrated in the TL segment.

Among those interviewed, none wanted to return to a federally regulated industry. Anthony Burns, president and CEO of Ryder Systems, says there is no place in a free society for regulation. "Ultimately, the people who benefit will be consumers. Deregulation opened doors to all kinds of possibilities for private companies," Burns says. He predicts the country will see private companies getting back into providing "those kinds of services they once provided, such as operating city bus lines. Deregulation," he continues, "provides a more efficient system for the country."

"Under 50 years of regulation, nobody could be creative," Estes says. "Now you must be creative to survive. Our country got fat and lazy. Now people have started supervising themselves, and with that comes opportunity. There will be lots of changes, lots of opportunity and lots of training needed because the free market creates opportunity."

Burns says Ryder Systems will spend $1 billion on expansion in the next two to three years. In the future, Burns said he may take Ryder into the regional LTL market. He predicts some limited growth in full-service leasing and a slow-down in the growth of private carriage.

Richard Henderson, director of Private Truck Council of America, acknowledges there might be some shippers that will switch to common carriage. But, he says, private trucking is so big, the slowdown hardly will be noticed.

Asked if he had any desire to return to regulation, Carolina's Younger said bluntly: "Hell, no! I enjoy the competition, and I am very optimistic for the future. It has been an exciting period, and I believe it will continue to be exciting."

"There is some uncertainty now under deregulation, that is troubling shippers," says Few. "So long as there is a surplus of capacity, shippers are in the driver's seat. But if that surplus becomes taxed, shippers may want to return to some regulation."

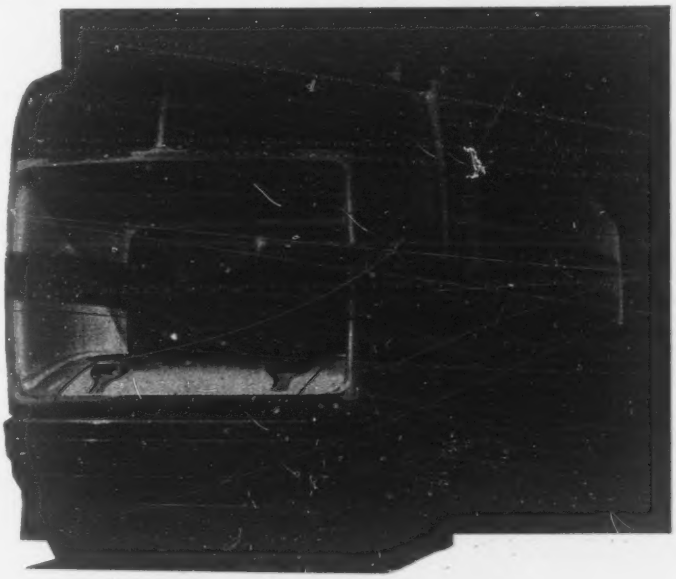
"It is going to be very expensive for carriers to stay in business," says Estes. "They are going to need deep pockets. For instance, it is going to cost millions to update and replace underground tanks over the next five years. This will take a lot of people out of the market."

The Supplier Side

Because of the strong buy-American resistance many readers have against foreign products and their suppliers, and because of competitive sensitivity, virtually everybody interviewed for this section agreed to do so with the stipulation that they not be quoted. Readers, therefore, will not have the benefit of knowing "who said what." You should nevertheless understand that many top executives on the supplier side contributed to the insights that follow.

Internationalization of trucking suppliers is the most profound force reshaping all aspects of the domestic truck market today. Foreign companies own or control approximately 40% of the domestic heavy-duty truck market share today (Renault/Mack, Volvo/White, Mercedes/Freightliner). Many believe this percentage will rise in the near future.

This influx of offshore truck builders into North America is contributing to a change in basic manufacturing philosophy, toward vertical integration from horizontal integration. That



change is causing to be tested many long-standing business relationships between parts and component vendors and truck builders as each reduces the number of options engineered into their products.

Fleet operators are discovering that the economics of competition, combined with certain foreign product advantages, means it may not be prudent to cling tenaciously to a buy-American policy that continues in many companies today. Some have taken the position, for instance, that there is nothing inherently wrong with a vertically integrated truck (vs. a custom spec'ed vehicle), provided it is properly engineered for the geography and vocation in which it is to be used.

These are examples of the wide-ranging impact foreign companies will continue to have in the domestic truck market. In addition, industry watchers say we will witness a continuation of the current rash of mergers, acquisitions and joint-technology development programs (domestic with foreign).

There will be increasing homogenization of domestic truck brands as they begin to sprout more foreign truck components, especially engines, axles and drivelines. This trend is well-established in at least two domestic brand trucks. Volvo White Truck Corp. is market testing Volvo engines and other components in its White model trucks, and Mercedes-Benz is doing the same in Freightliner models.

Also, the metrification program of American military vehicles will spill over into commercial vehicles. This will drive alterations in manufacturer's tooling that also is used to produce commercial vehicles, parts and components.

Fear of an industry shakeout among parts vendors, component suppliers and vehicle assemblers is still very real to those interviewed for this section. Projections differ, however, as to when the shakeout will occur and the degree to which it will reduce the number of companies supplying products to the trucking industry.

The conservative view is that component suppliers will remain dominant in markets where they are now strong and they will "fall off" not "fall out" of markets in which they are weak. The other view is that foreign competition will force a drastic reduction in the number of suppliers to the industry, and that it will begin with the next downturn in the economy. One widely held opinion is that for a supplier to prosper in the trucking industry of the future, it will need to be a "world supplier" with an international manufacturing base, enabling it to gain the economy of scale needed to compete in the increasingly price-sensitive market of tomorrow.

Overall, fleet operators should see moderate truck price increases in the near future. Prices will be held low by intense domestic and foreign competition and by improvements in manufacturing productivity and cost control. For instance, Jim Henderson, president, Cummins Engine Co., Columbus, Ind., says their goal is to reduce cost 30% by 1987. Whether or not increased manufacturing efficiencies like this are achieved, the efforts to achieve them will benefit buyers.

In the coming years, more fleet operators will select suppliers with extra caution when evaluating a potential supplier's market prowess and staying power.

Used truck buyers will play a more important role in the years ahead. There is growing concern among truck builders about their ability to deal with used trucks in a profitable manner as future truck technology begins to widen the productivity and cost-of-ownership gaps between the next generation of trucks and the current generation.

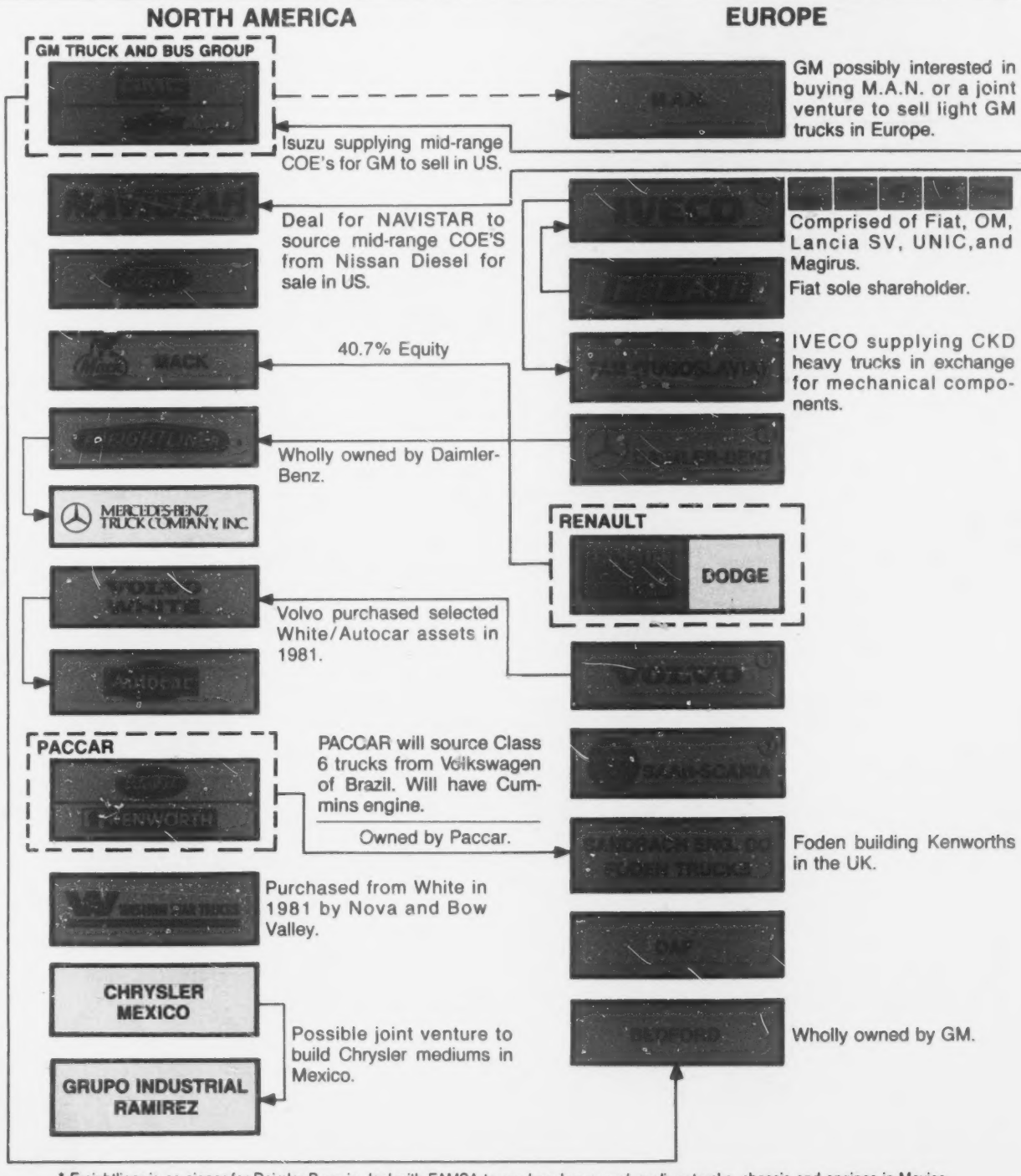
As the large, financially sound trucking companies upgrade their fleets with more efficient, technologically advanced vehicles, they will be trading in large numbers of used vehicles which, from a technology and efficiency standpoint, may be considered obsolete by tomorrow's standards.

Those interviewed for this section agree that technology's rate of advance will rapidly increase between future generations of trucks. Whereas trucks five years ago were technologically similar to trucks from 10 years ago, this will not be the case 10 years from now when trucks will be much more efficient and technologically advanced. This concern for technological obsolescence is a new dilemma for truck marketers who must find buyers for tomorrow's used trucks in order to open the market for their new trucks. This is especially critical to volume-sensitive, domestic truck builders.

Some say this will drive a resurgence in truck reconditioning, as manufacturers begin to look for ways to upgrade used trucks, taken at trade-in time, in a way that will make them more desirable to the traditional used truck buyer. Other impacts, CCJ is told, may be the initiation of longer used

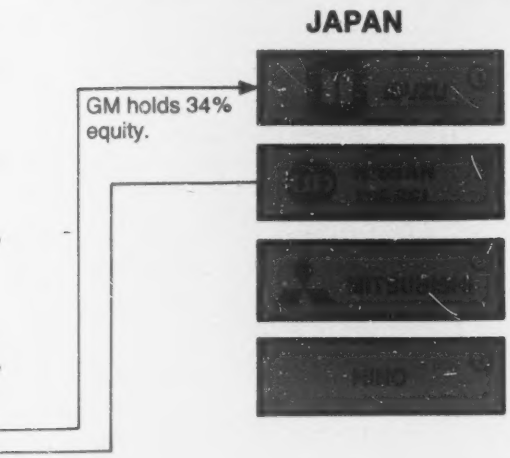
MEDIUM AND HEAVY-DUTY TRUCK JOINT VENTURES AND MERGERS

A look at what's happening in the international truck markets.


NORTH AMERICA
EUROPE
GM TRUCK AND BUS GROUP
GM possibly interested in buying M.A.N. or a joint venture to sell light GM trucks in Europe.
Isuzu supplying mid-range COE's for GM to sell in US.
Deal for NAVISTAR to source mid-range COE'S from Nissan Diesel for sale in US.
Comprised of Fiat, OM, Lancia SV, UNIC, and Magirus.
Fiat sole shareholder.
40.7% Equity
IVECO supplying CKD heavy trucks in exchange for mechanical components.
Wholly owned by Daimler-Benz.
MERCEDES-BENZ TRUCK COMPANY, INC.
RENAULT
DODGE
Volvo purchased selected White/Autocar assets in 1981.
PACCAR
PACCAR will source Class 6 trucks from Volkswagen of Brazil. Will have Cummins engine.
Owned by Paccar.
Foden building Kenworths in the UK.
Purchased from White in 1981 by Nova and Bow Valley.
CHRYSLER MEXICO
GRUPO INDUSTRIAL RAMIREZ
Possible joint venture to build Chrysler mediums in Mexico.
Wholly owned by GM.

* Freightliner is co-signer for Daimler-Benz in deal with FAMSA to produce heavy and medium trucks, chassis and engines in Mexico.

INTO THE 21st CENTURY



Key

- Heavy Truck Mfg.
- Medium Truck Mfg.
- Heavy and Medium Truck Mfg.
- ① Exporting mediums to the US.
- ② Exporting Heavy Trucks to the US.

Many of the smaller concerns building medium and heavy trucks in third world countries are not listed here in order to reduce the chart's complexity. Since we will be updating this chart from time to time, any feedback from readers would be appreciated.

Main Heavy Truck Contenders on World Market
(Class 8—Units/Production)

	1983*	TOTAL	1984*	TOTAL	1985**	TOTAL
Daimler-Benz	46,978	58,750	38,366	58,346	36,000	55,500
Freightliner	11,772		19,980		19,500	
Renault	16,952	31,145	15,724	44,798	17,000	44,000
Mack	14,193		29,074		27,000	
Volvo	23,395	28,516	23,865	33,764	28,000	38,500
White	5,121		9,899		10,500	
International Harvester		21,317		35,681		32,000
Kenworth	9,349	17,852	15,718	30,360	12,500	23,500
Peterbilt	8,503		14,642		11,000	
Saab-Scania		16,743		22,100		23,000
Hino		14,978		21,080		19,000
Mitsubishi		15,250		20,483		20,000
Nissan		15,718		19,062		15,000
Ford		9,070		18,845		21,000
Chevrolet	561	9,040	893	18,025	1,000	15,000
GMC	8,479		17,132		14,000	
Isuzu		15,488		17,360		15,000
Iveco		19,848		16,556		18,000
M.A.N.		11,329		11,154		14,000
TOTAL		285,044		367,614		353,500

*1983-84 Source: PRS Consulting Group Inc. **1985: Chilton Estimate

truck warranty periods and the need for dealers to work harder at capturing and preserving the trust of used truck buyers in the local market.

New truck buyers will be affected by the used truck problem as well. The practice of guaranteeing residual values, as part of new truck purchase negotiations, will be less prevalent, and residual guarantees that are given will be much more conservative. This is because truck marketers will be dealing with a higher degree of price uncertainty for the used vehicle.

Will there be a glut of used trucks? Most analysts say there will not. They add, however, that used truck prices will be low and that a buyer's market may prevail for a period of time. There are indications that future buying practices of owner operators (a prime used truck market) will be toward a less premium spec'ed vehicle. This would limit practices now used by new truck buyers, such as spec'ing a vehicle at 400 hp and de-rating the engine to 350 hp for fleet use, then re-rating it at 400 hp to make the vehicle more desirable to owner operators in the used truck market.

In any case, fleet operators will want to give more consideration to the value and application of used trucks, whether they are buying new or selling used.

What shape the trucking industry of tomorrow will assume, depends in large measure on who you talk to today. The bottom line is, nobody knows for certain. One thing about which everybody agrees, however, is that it will be much different from today.

If only one thing about the future is clear, it is that trucking is rapidly becoming a more sophisticated and increasingly competitive industry. Perhaps the most critical need will be for talented workers in all segments of the industry – engineer-ing, manufacturing, marketing, lobbying, fleet management, truck mechanics and, of course, drivers. To prosper, the industry will need to attract well-educated, talented, energetic managers and employees in all positions.

"I see lots of opportunity in our industry for young people," says Carolina's Younger. The challenge for the industry will be to have young, talented people agree with him.

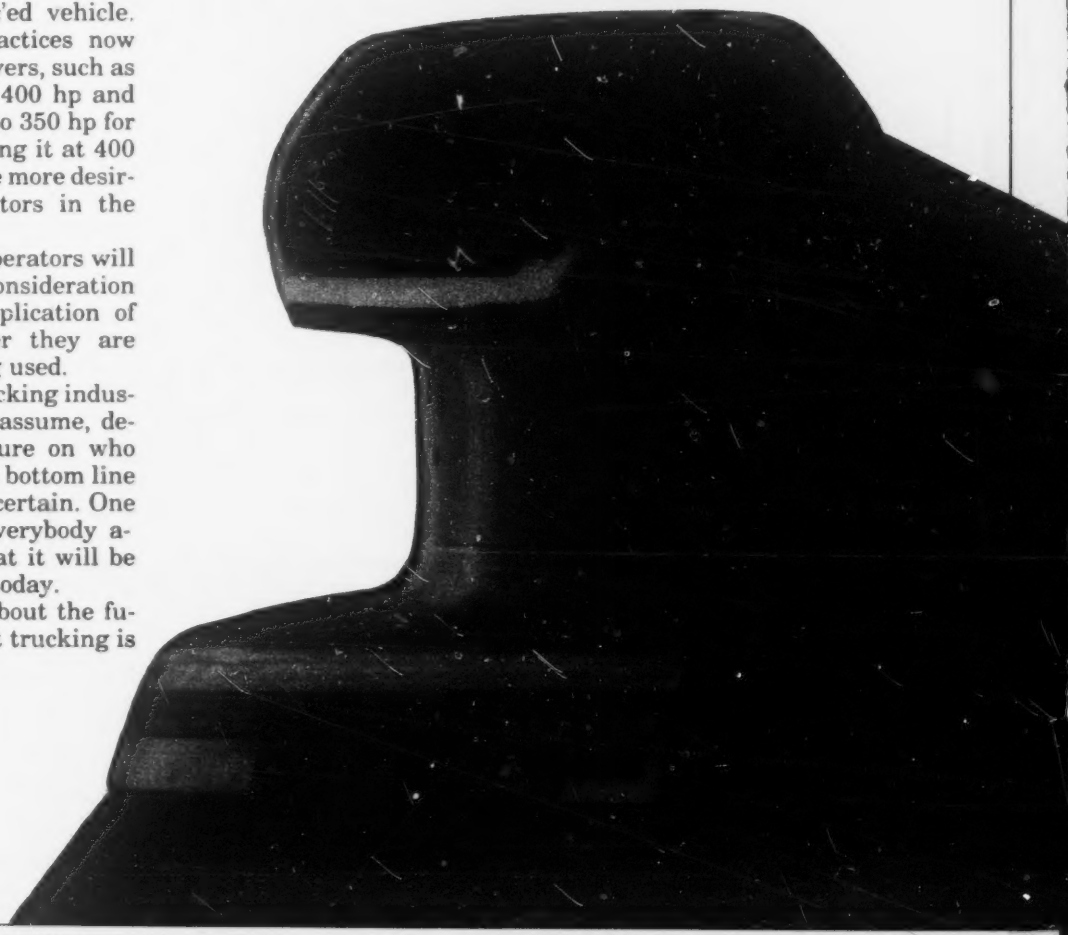
What Analysts And Other Observers Say

"Never make forecasts, especially about the future," warned Sam Goldwyn, the Hollywood mogul. Despite that admonition, we asked a number of industry analysts to share with us their predictions about the future.

Michael Galardi, a vice president and motor carrier industry analyst for Temple, Barker and Sloane, a Lexington, Mass. management consulting firm, embraces the widely held projection that *total* deregulation will be here "sooner rather than later." He also says: "The Sun Belt will continue to gain traffic from other areas."

Ronald Roth, director of American Trucking Associations' Statistical Analysis Department, says the U.S. economy is projected to grow at 3% to 4% annually, and "trucking will have tight margins" for the balance of the decade.

Priscilla Luce, director of indus-



trial analysis for Wharton Econometric Forecasting Services, in Philadelphia, says trucking has gained market share relative to other modes. In 1975, the industry captured 42.5% of U.S. transportation dollars (constant, value-added); railroads had 21.0%. In 1985, trucking's share increased to 44.1% while the rail share declined to 16.5%. By 1995, there will be little change, says Luce, with truck and rail shares each increasing by less than 1%.

Luce also says that, despite hand-wringing over the volume of goods imported into the U.S., it stabilized at 10.4% of the U.S. gross national product (GNP) in 1985, after surging from 5.8% of the GNP in 1975. By 1995, Luce projects, the import share will rise only 0.5% more.

Luce feels, numbers notwithstanding, that the trucking industry will continue to feel a negative impact (in tonnage) from imports. She says this is because imported goods miss several transport stages that domestic-made products undergo—for example, natural resources hauled from the mine to the processor, then to a fabricator, to the wholesaler/distributor in the production formula.

There will be a greater concentration of major LTL carriers, probably no more than five or six, according to Stephen Klein, an analyst who follows the motor carrier industry for Standard & Poor's Corp., of New York City. Klein doesn't believe that employee stock option plans (ESOPs) will be a successful means of economic survival for unionized carriers because "the problem is, they'll have the same management."

Klein says, by the year 2000, the 10 largest LTL carriers will haul 65% of all LTL tonnage, up from today's 47%. They will increase their total share of revenues from that tonnage to 85% from 75%. That would indicate that the profitable top LTL carriers will have even greater earnings tomorrow. (*Editor's note: Klein made this statement before the nation's eighth largest for-hire carrier, McLean Trucking Co., filed for Chapter 11 in January under the Federal Bankruptcy Code.*)

Klein expects more LTL carriers to establish double-breasted operations and that these non-union subsidiaries will someday dominate the TL market.

ATAs' Roth also expects large LTL carriers to continue to grow disproportionately larger. He foresees big LTL carriers expanding vertically, offering full service TL, LTL, contract, intermodal and package delivery to clients.

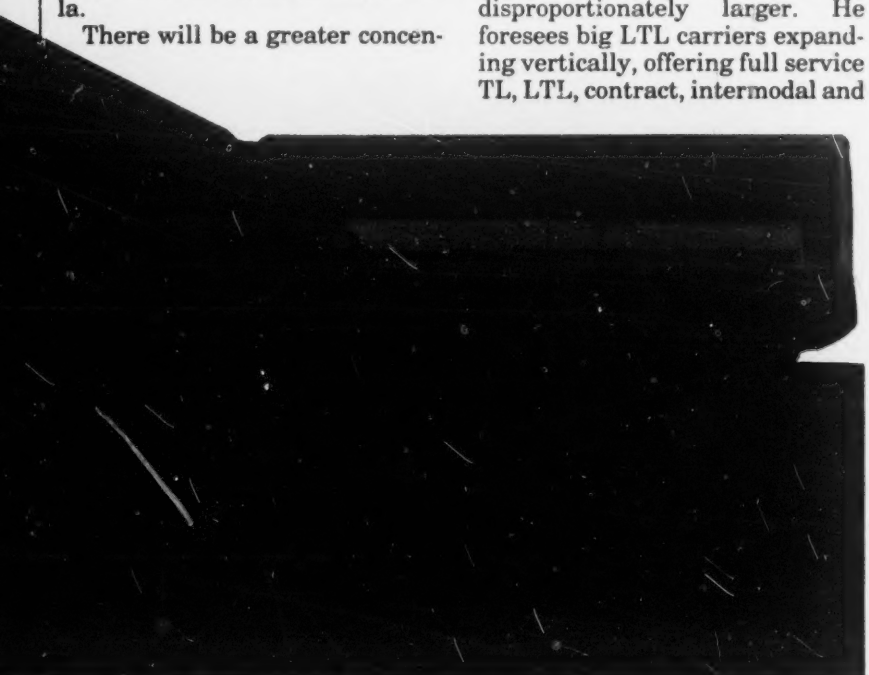
Drew Robertson is a marketing director for Reebie Associates, a Stamford, Conn.-based management consulting firm that watches the trucking industry for Chase Econometrics of Philadelphia. He says publicly held LTL carriers also will become bigger because of pressure from Wall Street to expand.

High technology will impact on the trend toward mega-carriers. As David Stubblefield, senior vice president of marketing, at ABF Freight System, Inc., Fort Smith, Ark., explains: 50% of truck traffic is acquired from major companies that have significant information transmission systems, so they will be drawn to fleets that offer paperless communications such as electronic data interchange of shipping documents. All the major national carriers now have that capability, says Galardi, but "well-managed, small and medium-sized carriers can plug into those systems."

Electronic communications between shippers and carriers-of-choice will make the dialog "less confrontational," with the respective sides seeking reasonable rates and acceptable profits, suggests Hank Schmidt, assistant vice president and director of corporate relations at CF Industries, Palo Alto, Calif.

Like their LTL cousins, many private fleets will become huge resulting from large corporate consolidations or mergers and because they'll take advantage of regulatory freedoms gained in recent years, claims Roth.

Klein predicts private carriers will continue to be a dominant factor in the industry; they also will increase their use of for-hire



and contract carriers. Galardi thinks private carriers are already losing a share of their market. He says total deregulation will provide a creative and competitive climate for contract and for-hire carriers. This "will exacerbate" the private carrier's decline. "Why be a private carrier if you offer no competitive advantage?" asks Galardi.

The ever-shifting U.S. economy will continue to impact the trucking industry in less-than-obvious ways, explains Reebie Associates' Robertson. Consider how direct marketing has impacted trucking, he suggests. For many years, department stores used their delivery service—often contracted to United Parcel Service—as a marketing tool, offering to transport even lightweight packages to customers' homes. That service became cost-prohibitive, except for furniture and large appliances. Today, however, consumers often shop by mail and telephone—direct marketing, whose distributors provide truck delivery to every buyer's home, not to stores. Ironically, UPS has recaptured the traffic it lost to market dynamics many years ago.

None of those interviewed see a significant increase in intermodalism. Stubblefield, however, is concerned about inherent labor problems. ABF's union driver roster, for instance, must be exhausted before an intermodal connection can be sought. He's confident the problem can be solved because the labor atmosphere is changing for the better.

There is limited support for the concept of one-stop shopping—one or more computerized super brokerages for shippers seeking carriers and fleets in search of loads. S&P's Klein speculates the day may come when a Merrill Lynch or a Sears' type financial services group will use its information management resources to establish a huge transportation brokerage. Their services could be far more extensive than anything typical trucking brokers offer. Robertson disagrees, observing that the transportation brokers' margins are too slim to attract big-time money.

Even if one or more national brokerages is successful, that doesn't mean small, well-managed, brokers will become obsolete, according to Robertson. Brokers profit from personalized service and shippers' inefficiencies, he says. "A typical broker knows more about the trucking business than many small shippers."

Truck service pricing also is changing because large LTL shipments are less likely to subsidize small LTL shipments, explains Stubblefield. Since 1979, he points out, minimum charges and rates for shipments of less than 500 lb increased 81% more than rates for 1000- to 5000-lb shipments.

To survive in the coming years, carriers must use realistic pricing to *increase profits*, not just to cut losses, says William Legg, an analyst for Alex. Brown and Sons, a Baltimore stock brokerage. "A carrier with a 98 operating ratio can't build capital to replace equipment or expand its operation."

This brings us back to an admonition stated in the beginning of this special future section: "Don't let the evolutionary pressures of today prevent you from preparing for the opportunities of tomorrow."

Sources Of Information

Noted below are the worthwhile publications CCJ's editors used to research and write this special 75th Anniversary section. The materials are not available from CCJ; they can be acquired from the sources indicated below. There may be a charge for the publications in this listing; readers should inquire before ordering.

Market

Industrial Analysis Service's "10-Year Outlook"
November 1985
Wharton Econometric Forecasting Associates
3624 Market Street
Philadelphia, Pa. 19104
215-386-9000

Technology and Tomorrow's Trucks

Tomorrow's Trucks: The User's Perspective
SAE Paper 852330
Society of Automotive Engineers
400 Commonwealth Drive
Warrendale, Pa. 15096
412-776-4841

Proceedings P-154
International Congress on Transportation Electronics (Convergence 84)
Society of Automotive Engineers
400 Commonwealth Drive
Warrendale, Pa. 15096
412-776-4841

Anti-lock Braking Systems for Road Vehicles
Mechanical Engineering Publications Ltd.
PO Box 24 Northgate Avenue
Bury St. Edmonds
Suffolk IP32 6BW, Great Britain